



Australian Government

UEEIC0007 Design and use advanced programming tools, PC networks and HMI Interfacing

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to design and use advanced programming tools, personal computer (PC) networks and human-machine interface (HMI) in the design of computer applications for control processes.

It includes preparing, developing and obtaining design approval for computer applications by designing control systems, programmable logic controllers (PLCs), and supervisory control and data acquisition (SCADA) systems.

It also includes control programming methods, developing alternative design schemes based on design brief and customer relations and documenting design.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to design

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1 Work health and safety (WHS)/occupational health and safety (OHS) processes and workplace procedures for a

computer applications	given work area are identified, obtained and applied
	1.2 Hazards are identified, WHS/OHS risks assessed, and control measures and workplace procedures are implemented in preparation for work
	1.3 Scope of proposed control system is determined from the design brief and in consultation with relevant person/s
	1.4 Design development work is planned to meet scheduled design brief timelines in consultation with person/s involved on the worksite
2 Develop computer applications design for control process	2.1 Control devices, control systems and control programming methods are applied to the computer applications design
	2.2 Alternative concepts for the design are tested in accordance with the requirements outlined in the design brief
	2.3 Safety specifications and budget constraints are considered in the design process
	2.4 System design draft is checked for compliance with the design brief, relevant industry standards and regulatory requirements
	2.5 System design is documented for submission to relevant person/s for approval
	2.6 Solutions to unplanned situation are dealt with in a manner that minimises risk to personnel and equipment in accordance with workplace policies and procedures
3 Obtain design approval for computer applications	3.1 System design is presented and explained to client representative and/or relevant person/s
	3.2 Requests for alterations to design are negotiated with relevant person/s in accordance with workplace policy
	3.3 Final design is documented and approval obtained from relevant person/s
	3.4 Quality of work is monitored in accordance with performance agreement/specifications and/or workplace procedures or industry standards

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Designing a computer-based control system must include at least two of the following:

- configure and test a PLC peer to peer network
- configure and test a PLC hierarchical network
- configure and test a PLC field bus style network
- develop PLC code using a structured text programming tool
- develop PLC code using a sequential function chart programming tool
- design a simple HMI interface using a typical touch screen device
- use system diagnostics to fault find hardware/software issues
- program and test a proportional integral derivative (PID) functional control/program block

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI154A Design and use advanced programming tools PC networks and HMI Interfacing.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>